



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/786,885

02/25/2004

Grant C. Zenkner

BO1 - 0173US

1895

60483

7590

02/20/2007

LEE & HAYES, PLLC
421 W. RIVERSIDE AVE.
SUITE 500
SPOKANE, WA 99201

EXAMINER

STAICOVICI, STEFAN

ART UNIT

PAPER NUMBER

1732

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
--	-----------	---------------

3 MONTHS

02/20/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/786,885

Applicant(s)

ZENKNER ET AL.

Examiner

Stefan Staicovici

Art Unit

1732

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 January 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) 20-26 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. Applicants' amendment filed January 29, 2007 has been entered. Claims 1-26 are pending in the instant application.

Election/Restrictions

2. This application contains claims 20-26 drawn to a non-elected invention. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-3 and 12-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Waldrop, III *et al.* (US 2002/0022422 A1).

Waldrop, III *et al.* (US 2002/0022422 A1) teaches the claimed process of making a fiber composite including, providing a non-planar mandrel, applying fiber pre-preg sheet onto said mandrel, applying a first, flexible bag (caul) onto said fiber pre-preg sheet such a first region is

in contact with the fiber pre-preg sheet and a second region extends away from the fiber pre-preg sheet (see Figure 10), applying a second, flexible bag over the first, flexible bag, drawing a vacuum, injecting a resin to impregnate the fiber pre-preg sheet and curing the resin under heat and pressure to form the fiber composite (see page 17, ¶¶ 213-215). It is noted that when a vacuum is drawn the second, flexible bag collapses against the first, flexible bag such that both the first and second, flexible bags are flush against the fiber pre-preg sheet. Furthermore, it is noted that Waldrop, III *et al.* (US 2002/0022422 A1) specifically teaches that the double vacuum bag provides a “caul effect,” hence teaching that the first, flexible vacuum bag is in effect a caul (see page 2, ¶ 11, lines 1-5).

Regarding claims 3 and 14, Waldrop, III *et al.* (US 2002/0022422 A1) teaches that the first, flexible vacuum bag (caul) is sealed to the mold. It is submitted that during the sealing process the first, flexible vacuum bag (caul) is stretched.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mead (US Patent No. 6,620,369 B1) in view of Waldrop, III *et al.* (US 2002/0022422 A1).

Mead ('369) teaches the basic claimed process for making a fiber composite including, providing a non-planar mandrel (40), applying fiber pre-preg sheet (20) onto said mandrel, applying a peel-ply (release sheet) (140) over the fiber pre-preg sheet (20), applying a caul (160) over the peel-ply sheet (140), applying a flexible vacuum bag (180) over the caul (160), drawing a vacuum, and curing the resin under heat and pressure to form the fiber composite (see col. 7, line 1 through col. 8, line 63).

Regarding claims 1-2 and 12-13, although Mead ('369) teaches a caul sheet, Mead ('369) does not teach that the caul sheet has a first section in contact with the fiber pre-preg sheet and a second portion that is stretched away from the fiber pre-preg sheet. Waldrop, III *et al.* (US 2002/0022422 A1) teaches a process for making a fiber composite including, providing a non-planar mandrel, applying fiber pre-preg sheet onto said mandrel, applying a first, flexible bag (caul) onto said fiber pre-preg sheet such a first region is in contact with the fiber pre-preg sheet and a second region extends away from the fiber pre-preg sheet (see Figure 10), applying a second, flexible bag over the first, flexible bag, drawing a vacuum, injecting a resin to impregnate the fiber pre-preg sheet and curing the resin under heat and pressure to form the fiber composite (see page 17, ¶¶ 213-215). It is noted that when a vacuum is drawn the second, flexible bag collapses against the first, flexible bag such that both the first and second, flexible bags are flush against the fiber pre-preg sheet. Furthermore, it is noted that Waldrop, III *et al.* (US 2002/0022422 A1) specifically teaches that the double vacuum bag provides a "caul effect," hence teaching that the first, flexible vacuum bag is in effect a caul (see page 2, ¶ 11, lines 1-5). Therefore, it would have been obvious for one of ordinary skill in the art to provide the flexible,

vacuum bag sheet (caul) of Waldrop, III *et al.* (US 2002/0022422 A1) in the process of Mead ('369) because Waldrop, III *et al.* (US 2002/0022422 A1) teaches that such an arrangement provides for improved resin flow, thereby providing for an improved product and also because, Mead ('369) teaches a caul sheet, hence suggesting the flexible, vacuum sheet of Waldrop, III *et al.* (US 2002/0022422 A1) that acts a caul sheet.

Regarding claims 3 and 14, Waldrop, III *et al.* (US 2002/0022422 A1) teaches that the first, flexible vacuum bag (caul) is sealed to the mold. It is submitted that during the sealing process the first, flexible vacuum bag (caul) is stretched. Therefore, it would have been obvious for one of ordinary skill in the art to stretch the flexible, vacuum bag sheet (caul) of Waldrop, III *et al.* (US 2002/0022422 A1) in the process of Mead ('369) because Waldrop, III *et al.* (US 2002/0022422 A1) teaches that such an arrangement provides for improved resin flow, thereby providing for an improved product and also because, Mead ('369) teaches a caul sheet, hence suggesting the flexible, vacuum sheet of Waldrop, III *et al.* (US 2002/0022422 A1) that acts a caul sheet.

In regard to claims 4-7, 9, 11 and 15-19, Mead ('369) teaches a step mandrel (40) having an upper portion, a step portion and a lower portion (see Figure 5). Further, Mead ('369) teaches a flexible, vacuum bag that is in contact with the upper portion, extends away from the step portion and is sealed to the third portion (see Figure 5). Waldrop, III *et al.* (US 2002/0022422 A1) teaches a first, flexible bag (caul) that is in contact with a first portion of a mandrel and is sealed to a second, lower portion of the mandrel (see Figures 8 and 10). Therefore, it is submitted that in the process of Mead ('369) in view of Waldrop, III *et al.* (US 2002/0022422 A1) the first,

flexible vacuum bag (caul) has a first portion in contact with the upper portion of mandrel, a second portion extending between the step portion and the lower portion of mandrel and is sealed to the third, lower portion (see Figure 5 of Mead ('369)). Upon application of vacuum, the second, flexible vacuum bag in the process of Mead ('369) in view of Waldrop, III *et al.* (US 2002/0022422 A1) collapses against the first, flexible vacuum bag (caul) and comes in contact with the pre-preg sheet and the mandrel.

Specifically regarding claim 8, Waldrop, III *et al.* (US 2002/0022422 A1) teaching sealing the first, flexible vacuum bag (caul) against the mandrel using a sealant (56) (see Figures 8 and 10). Although the process of Mead ('369) in view of Waldrop, III *et al.* (US 2002/0022422 A1) do not specifically teach a clamping member, the use of a clamping member to seal a vacuum bag is well known. It would have been obvious for one of ordinary skill in the art to provide a clamping member to seal the first, flexible vacuum bag (caul) as an equivalent alternative to the sealant in the process of Mead ('369) in view of Waldrop, III *et al.* (US 2002/0022422 A1) because of known advantages such as simplicity and cleanliness and also because sealants and clamping members are known to be equivalent alternatives.

Regarding claim 10, Mead ('369) teaches applying a peel-ply (release sheet) (140) over the fiber pre-preg sheet (20) (see Figure 5).

Response to Arguments

7. Applicants' arguments filed January 29, 2007 have been considered.

8. Applicants argue that Waldrop, III *et al.* (US 2002/0022422 A1) does not teach a “pre-preg” material because the preform is not impregnated with resin at the time it is placed on the lay-up tool (see pages 9-11 of the amendment filed 1/29/2007). However, Waldrop, III *et al.* (US 2002/0022422 A1) specifically teaches providing a pre-preg material by impregnating a fiber preform with a resinous binder prior to placing said pre-preg material onto the mold surface (see ¶¶ 91-92). Hence, it is submitted that Waldrop, III *et al.* (US 2002/0022422 A1) specifically teaches a pre-preg material. Although, the pre-preg material of Waldrop, III *et al.* (US 2002/0022422 A1) is also impregnated with another, second resin, because the claimed invention includes the transitional phrase “comprising,” it is submitted that additional elements or method steps are not excluded. See MPEP §2111.03, citing, Mars Inc. v. H.J. Heinz Co., 377 F.3d 1369, 1376, 71 USPQ2d 1837, 1843 (Fed. Cir. 2004).

9. Applicants argue that Waldrop, III *et al.* (US 2002/0022422 A1) does not teach an elastomeric caul *over the pre-preg* material because Waldrop, III *et al.* (US 2002/0022422 A1) does not teach a pre-preg material (see page 10 of the amendment filed 1/29/2007). However, as shown above, Waldrop, III *et al.* (US 2002/0022422 A1) specifically teaches a pre-preg material, because Waldrop, III *et al.* (US 2002/0022422 A1) teaches impregnating a fiber preform with a resinous binder prior to placing said pre-preg material onto the mold surface (see ¶¶ 91-92).

10. In response to applicant's arguments against the teachings of Waldrop, III *et al.* (US 2002/0022422 A1) and Mead ('369) individually (see pages 10-13 of the amendment filed 1/29/2007), one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See In re Keller, 642 F.2d 413, 208

USPQ 871 (CCPA 1981) and In re Merck & Co., 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

11. Applicants argue that Mead ('369) does not teach an elastomeric caul over the pre-preg material such that a first portion of the elastomeric caul is proximate the pre-preg material and a second portion of the elastomeric caul, adjacent the first portion, is spaced apart from the pre-preg material (see pages 11-13 of the amendment filed 1/29/2007). However, as shown above, it is the teachings of Waldrop, III *et al.* (US 2002/0022422 A1) that were used to show the above-argued limitation. Specifically, Waldrop, III *et al.* (US 2002/0022422 A1) teaches providing a non-planar mandrel, applying fiber pre-preg sheet onto said mandrel, applying a first, flexible bag (caul) onto said fiber pre-preg sheet, applying a second, flexible bag over the first, flexible bag, drawing a vacuum, injecting a resin to impregnate the fiber pre-preg sheet and curing the resin under heat and pressure to form the fiber composite (see page 17, ¶¶ 213-215). It is noted that when a vacuum is drawn the second, flexible bag collapses against the first, flexible bag such that both the first and second flexible bags are flush against the fiber pre-preg sheet at the top and bottom (a first portion of the elastomeric caul is proximate the pre-preg material), but are away from the pre-preg sheets on the sides because of the mold tools that separate the stiffeners (a second portion of the elastomeric caul, adjacent the first portion, that is spaced apart from the pre-preg material). Furthermore, it is noted that Waldrop, III *et al.* (US 2002/0022422 A1) specifically teaches that the double vacuum bag provides a "caul effect," hence teaching that the first, flexible vacuum bag is in effect a caul (see page 2, ¶ 11, lines 1-5). Therefore, it would have been obvious for one of ordinary skill in the art to provide the flexible, vacuum bag sheet (caul)

of Waldrop, III *et al.* (US 2002/0022422 A1) in the process of Mead ('369) because Waldrop, III *et al.* (US 2002/0022422 A1) teaches that such an arrangement provides for improved resin flow, thereby providing for an improved product and also because, Mead ('369) teaches a caul sheet, hence suggesting the flexible, vacuum sheet of Waldrop, III *et al.* (US 2002/0022422 A1) that acts a caul sheet.

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Conclusion

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stefan Staicovici, Ph.D. whose telephone number is (571) 272-1208. The examiner can normally be reached on Monday-Friday 9:30 AM to 6:00 PM.

Art Unit: 1732

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Johnson, can be reached on (571) 272-1176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Stefan Staicovici, PhD



Primary Examiner

2/15/07

AU 1732

February 15, 2007